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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/709,187	11/10/2000	David Raccah	ZAM-0001	4972

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EXAMINER	
QURESHI, SHABANA	
ART UNIT	**PAPER NUMBER**
2155	

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/709,187	RACCAH ET AL.	
	Examiner	Art Unit	
	Shabana Qureshi	2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- *Extensions of time may be available under the provisions of* 37 CFR 1.136(a). *In no event, however, may a reply be timely filed after* SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 June 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,6-8,11,13 and 14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 6-8, 11, 13 and 14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 1, 6-8, 11, 13, and 14 are pending in this Office Action, in response to the Amendment submitted on June 10, 2004. Claims 2-5, 9, 10, 12, and 15-20 have been canceled in the Amendment submitted on June 10, 2004.

Response to Arguments

Applicant's arguments filed June 10, 2004 have been fully considered but they are not persuasive.

Applicant makes the following arguments:

1. None of the prior art discloses or suggests a scalable storage system that can handle requests that can affect multiple back-end servers and that include separate services for metadata and storage as claimed.
2. Lin does not teach a storage system with separate metadata and storage server elements, nor a system that can manage requests that may affect multiple back-end servers.
3. Lin makes no provision for coordinating operations involving multiple back-end servers for a single request. Rather, Lin teaches assigning a task to a single back-end server.
4. Lin fails to teach the metadata service element of the claimed invention.
5. Hickman fails to disclose a separate metadata service including a plurality of metadata servers.

6. Hickman fails to disclose or suggest the claimed metadata service that includes independent and functionally de-coupled servers.

As per Applicant's first argument, Examiner disagrees. The system of Lin is scalable because it allows resource management across multiple servers, each of which provide separate tasks (Fig. 2, 3A3C; col. 2, line 55- col. 3, line 3; col. 4, lines 32-37; col. 6, lines 40-44). Although Applicant does claim both storage and metadata properties, Applicant does not clearly state in the claims that the storage and metadata system exclusively separate from one another. Lin's system does disclose metadata services, which are provided by the resource managers (Fig. 2, 3A, 3C; col. 3, lines 62-67; col. 4, lines 32-37; col. 5, lines 7-22; col. 6, lines 40-44).

As per Applicant's second argument, Applicant does not claim argued matter as stated above. Requests as taught in Lin affect multiple servers as different servers perform different tasks (Fig. 3A-3C and relevant text).

As per Applicant's third argument, Lin does teach that a single request may involve multiple back-end servers, because as stated above, a request may have different servers performing different tasks. Lin further teaches that the when one server fails to serve a request, a back-up is provided (column 6, lines 15-32).

Examiner disagrees with Applicant's fourth argument. As stated above, Lin's system does disclose metadata services, which are provided by the resource managers (Fig. 2, 3A, 3C; col. 3, lines 62-67; col. 4, lines 32-37; col. 5, lines 7-22; col. 6, lines 40-44).

With regard to Applicant's fifth argument, although the Applicant does claim both storage and metadata properties, Applicant does not clearly state in the claims that the storage and metadata system exclusively separate from one another. Applicant further goes on to argue

that Hickman teaches a cluster of directory servers, but does not teach a plurality of metadata servers. Applicant defines metadata servers to store information about the file system hierarchy, the identity of files, and the location of the file data. However, Examiner interprets directory servers to have the same functions as metadata servers as defined by the Applicant.

As per Applicant's final argument, Examiner disagrees. In the cited portions and figures in the rejection of claim 8, Hickman teaches that a client is serviced by a unique partition within a particular server, which the Examiner interprets as being functionally de-coupled. Because only a single server manages the request, it is interpreted by the Examiner that the server is independent of the states of other servers in the system.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351 (a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 6-8, 11, 13, and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,298,451 131 issued to Lin.

With respect to claim 1, Lin teaches a storage system, comprising:

- a plurality of system servers connected to one another by a communication network having at least one node (Fig. 2), wherein each system server includes at least one process that provides a storage system function independent of the states of other system servers in response to a request to the storage system that may affect multiple system servers (Fig. 2, 3A; col. 2, line 55- col. 3, line 3), and wherein the storage system functions include:
- at least one gateway service that includes a plurality of gateway servers, each gateway server hosting at least one client process that can process client requests and pass the resulting set of requests to the storage system and including a process that may access at least one server directory to determine the location of a system server that can service a generated client request (Fig. 2, 3A-3C; col. 4, lines 32-37, 63- col. 5, line 30; col. 6, lines 40-54);
- at least one storage server service that includes a plurality of storage servers, each storage server including a process that accesses files stored in the storage system independent of the files accessed by other storage servers (Fig. 2, 3A3C; col. 2, line 55- col. 3, line 3; col. 4, lines 32-37; col. 6, lines 40-44); and
- at least one service further comprises a metadata service that includes a plurality of metadata servers, each metadata server including a process that accesses a set of metadata independent of the metadata sets accessed by other metadata servers (Fig. 2, 3A, 3C; col. 3, lines 62-67; col. 4, lines 32-37; col. 5, lines 7-22; col. 6, lines 40-44).

With respect to claim 6, Lin teaches the storage system of claim 1, further including: at least one server directory that includes location information and service capabilities of the system servers (Fig. 2, 3A-3C; col. 3, lines 36-41; col. 5, line 59- col. 6, line 2, 47-65), at least one server directory providing at least one server location in response to a request to the storage system (Fig. 2, 3A-3C; col. 3, lines 36-41; col. 5, line 59- col. 6, line 2, 47-65).

With respect to claim 7, Lin teaches the storage system of claim 1, further including: a routing request server that provides system server location information in response to a request to the storage system, the location information corresponding to a system server that is capable of servicing the request (Fig. 2, 3A-3C; col. 3, lines 36-41; col. 4, line 63- col. 5, line 11, 59- col. 6, line 2, 47-65).

Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,564,252 131 issued to Hickman et al. ("Hickman").

With respect to claim 8, Hickman teaches a storage system, comprising:

- a plurality of servers arranged into at least two services each service providing different storage system functions independent of the status of any other service (Fig. 3, 10; col. 5, line 45- col. 6, line 5), and the servers of each service being functionally de-coupled from one another (Fig. 3), servicing requests, which may affect multiple servers, independent of the operation of other servers of the service (Fig. 3; col. 5, line 45- col. 6, line 5); the services including:

- a storage server service comprising a plurality of storage servers that provide access to files stored in a storage system, each storage server including an initialize function that may provide storage server location and storage server capability information (Fig. 3, 6; col. 5, line 60- col. 6, line 5; col. 7, lines 5-8, 46-50); and
- a metadata service comprising a plurality of metadata servers that provide access to metadata for files stored in a storage system, each metadata server including an initialize function that may provide metadata server location and metadata server capability information (Fig. 3, 4, 5, 10; col. 5, lines 45-56; col. 6, line 55- col. 7, line 21); and
- a server directory process that receives information for a storage system request an server location and capability information from the storage and metadata server, and that provides information to locate a server capable of servicing the request (Fig. 10; col. 6, lines 17-22, 55- col. 7, line 15; col. 12, lines 4-10).

With respect to claim 11, Hickman teaches the storage system of claim 8, wherein: the metadata server capability information includes a quality of service value (col. 10, lines 37-54).

With respect to claim 13, Hickman teaches the storage system of claim 8, wherein: the storage server capability information includes a set of files accessible by the storage server (Fig. 7; col. 7, line 60- col. 8, line 7).

With respect to claim 14, Hickman teaches the storage system of claim 8, further including: a plurality of gateway servers, each gateway server including a process that can access the server directory process to determine a location of a server capable of servicing a request and then access the server at the location to service the request (Fig. 3, 4, 5, 10; col. 5, lines 45-56).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shabana Qureshi whose telephone number is (703) 308-6118. The examiner can normally be reached on Monday - Friday, 8:30am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain T. Alam can be reached on (703) 308-6662. The fax phone number for the organization where this application or proceeding is assigned is (703) 746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Shabana Qureshi
Examiner
Art Unit 2155

September 16, 2004

HOSAIN ALAM
SUPERVISORY PATENT EXAMINER